

# Douglas Coates

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arXiv [arxiv.org/a/coates\\_d\\_1](https://arxiv.org/a/coates_d_1)

## RESEARCH POSITIONS

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<b>Postdoctoral Researcher</b> , FAPERJ Nota 10 position under the supervision of Katrin Gelfert, Universidade Federal do Rio de Janeiro, Brazil	Mar. 2025 – Present
<b>Postdoctoral Researcher</b> , FAPESP funded position under the supervision of Ali Tahzibi, Universidade de São Paulo, São Carlos, Brazil	Jul. 2023 – Mar. 2025
<b>Postdoctoral Research Associate</b> , EPSRC funded position under the supervision of Mark Holland, The University of Exeter, Exeter, United Kingdom	Apr. 2022 – Apr. 2023
<b>Postdoctoral Researcher</b> , under the supervision of Sylvain Crovisier, Université Paris Saclay (CNRS), Paris, France	Sep. 2021 – Mar. 2022

## PUBLICATIONS AND PREPRINTS

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- [1] Douglas Coates and Stefano Luzzatto. “Persistent Non-statistical Dynamics in One-Dimensional Maps”. In: *Communications in Mathematical Physics* 405.4 (2024), p. 102. DOI: [10.1007/s00220-024-04957-0](https://doi.org/10.1007/s00220-024-04957-0).
- [2] Douglas Coates, Ian Melbourne, and Amin Talebi. “Natural Measures and Statistical Properties of Non-Statistical Maps with Multiple Neutral Fixed Points”. 2024. DOI: [10.48550/arXiv.2407.07286](https://doi.org/10.48550/arXiv.2407.07286).
- [3] Douglas Coates, Stefano Luzzatto, and Mubarak Muhammad. “Doubly Intermittent Full Branch Maps with Critical Points and Singularities”. In: *Communications in Mathematical Physics* 402.2 (2023), pp. 1845–1878. DOI: [10.1007/s00220-023-04766-x](https://doi.org/10.1007/s00220-023-04766-x).
- [4] Douglas Coates. “Semi-Stable Laws for Intermittent Maps”. 2021. URL: <https://ore.exeter.ac.uk/repository/handle/10871/124410>.
- [5] Douglas Coates, Mark Holland, and Dalia Terhesiu. “Limit Theorems for Wobbly Interval Intermittent Maps”. In: *Studia Mathematica* 261.3 (2021), pp. 269–305. DOI: [10.4064/sm200427-21-11](https://doi.org/10.4064/sm200427-21-11).

## EDUCATION

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<b>PhD. Mathematics</b> , under the supervision of Mark Holland and Dalia Terhesiu,	Oct. 2016 – Jan. 2021
<b>MSci Mathematics</b> , University of Bristol	Sep. 2012 – Sep. 2016

## VISITING POSITIONS

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Visitor of <i>Katrin Gelfert</i> , <b>Universidade Federal do Rio de Janeiro</b> , Rio de Janeiro, Brazil	Jun. 2023
Visitor of <i>Lorenzo Diaz</i> , <b>Pontifícia Universidade Católica do Rio de Janeiro</b> , Rio de Janeiro, Brazil	May 2023
Visitor of <i>Ali Tahzibi</i> , <b>University of São Paulo, ICMC</b> , São Carlos, Brazil	Nov. 2022
Visitor of <i>Marcelo Viana</i> , <b>Instituto de Matemática Pura e Aplicada</b> , Rio de Janeiro, Brazil	Oct. – Nov. 2022
Visitor of <i>Stefano Luzzatto</i> , <b>The Abdus Salam International Centre for Theoretical Physics</b> , Trieste, Italy	May – Dec. 2022
Visitor of <i>Stefano Luzzatto</i> , <b>The Abdus Salam International Centre for Theoretical Physics</b> , Trieste, Italy	Feb. – Aug. 2021

## TEACHING, SUPERVISION AND OUTREACH ACTIVITIES

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### Teaching positions

**Lecturer**, International Mathematics Master, Algeria *Responsibilities*: lecturing, course design, exam preparation and marking, *Courses*: 30 hour post-graduate course in probability theory Dec. 2024

**Teaching Assistant**, Universidade de São Paulo (ICMC), São Carlos, Brazil Aug. 2023 – Mar. 2025  
*Responsibilities*: lecturing, co-supervision of master's student *Courses*: post-graduate course in ergodic theory,

**Academic Program Manager and Senior Tutor**, International Mathematics Master (ICTP-UNESCO development program in COMSATS University, Lahore, Pakistan), *Responsibilities*: problems classes, lecturing, course preparation, administration, exam writing, supervision of master's thesis Jul. 2020 – Jan. 2022  
*Courses*: post-graduate courses in commutative algebra, real analysis and measure theory, differential geometry, probability, dynamical systems, functional analysis, differential equations

**Teaching Assistant** at ICTP, Trieste, Italy Feb. – Aug. 2021  
*Responsibilities*: problems classes, homework marking  
*Courses*: dynamical systems and ergodic theory (master's level)

**Teaching Assistant** at the University of Exeter, Exeter, UK 2016 – 2020  
*Responsibilities*: problems classes, exam marking, homework marking  
*Courses*: mathematical structures (1st year), mathematical methods (1st year), signals series and transforms (2nd/3rd year), stochastic processes (2nd/3rd year), metric spaces and topology (3rd/4th year)

### Short courses

Some statistical properties of non-statistical maps – 6 hour mini-course, ICMC USP May 2024

Markov-chains and the Perron-Frobenius theorem – 6 hour online preparatory mini-course for the “VII Escola Brasileira de Sistemas Dinâmicos” Oct. 2023

Limit theorems in dynamical systems using transfer operator methods – 6 hour mini-course joint between PUC-UFRJ Jun. 2023

## SELECTED RESEARCH TALKS

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*Weak physical measures and statistical properties of some non-statistical maps*, Dynamical systems seminar Universidade Federal do Rio de Janeiro, Basil, Apr. 2024

*Persistent non-statistical behaviour in one-dimension*, Conference on Dynamics and Finance: from KAM Tori to ETFs, International Centre for Theoretical Physics (ICTP), Trieste, Italy Oct. 2023

*Persistent non-statistical behaviour in one-dimension* Dynamical systems seminar Instituto de Matematica pura e Aplicada, Rio de Janeiro, Basil July 2023

*Persistent non-statistical behaviour for interval maps with neutral fixed points* EDAI seminar, Pontifícia Universidade Católica do Rio de Janeiro, Brasil May 2023

*Persistent non-statistical behaviour for interval maps with neutral fixed points* University of Exeter, Exeter, United Kingdom Apr. 2023

*Limit theorems for intermittent maps with critical points* Dynamical systems seminar, Universidade de São Paulo, São Carlos, Brasil Nov. 2022

*Intermittency and non-statistical behaviour* Jangada Dinamica Conference – Universidade Federal do Ceará Fortaleza, Brasil Nov. 2022

*Stable laws for intermittent maps with critical points and/or singularities* Dynamical systems seminar, Université Paris Saclay, Paris, France

Sep. 2021

## EVENTS ORGANISED

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[Probabilistic methods for non-stationary dynamical systems](#) – two day meeting and workshop on the applications of probabilistic techniques to random and non-stationary dynamical systems. *University of Exeter*

April 2023

## LANGUAGES

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English – Fluent,

Italian – Fluent,

Spanish – Fluent,

Portuguese – Intermediate.